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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,440	03/18/2005	Kazuhiro Fujikawa	4858	4308
21553 7590 08/22/2007 FASSE PATENT ATTORNEYS, P.A. P.O. BOX 726 HAMPDEN, ME 04444-0726			EXAMINER LE, THAO P	
			ART UNIT 2818	PAPER NUMBER
			MAIL DATE 08/22/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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# Office Action Summary

Application No.

10/528,440

Applicant(s)

FUJIKAWA ET AL.

Examiner

Thao P. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,6-8,10,11,25-27 and 29-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,6-8,10,11,25-27,29 and 30 is/are allowed.
- 6) ☒ Claim(s) 31 and 32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 6/4/07.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

***Response to Amendment***

This office action is in response to Amendments filed on 07/25/2007.

Claims 1, 6-8, 10-11, 25-27, 29-32 are pending.

Claims 1, 26, 27, 30-32 have been amended.

Claims 2-5, 9, 12-24, 28 have been cancelled.

Remarks of applicants are fully considered. The previous final rejection has been withdrawn. Indication of "would be allowed" of claims 31-32 in the previous office action was a typo mistake. Claims 31-32 should have been rejected as same as claims 10-11 in the previous office action.

***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 06/04/2007 after the mailing date of the application. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention

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was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 31-32 are rejected under 35 USC 103 (a) as being anticipated by Japan Publication No. 04-002120 (submitted by IDS), in view of AAPA (Applicant Admitted Prior Art).**

Regarding claims 31-32, Japan Publication No. 04-002120 discloses a method of fabricating a semiconductor device by employing ion implantation to provide a semiconductor substrate 1 at a surface thereof with a region having dopant introduced therein, comprising the steps of: providing the substrate 1 at a surface thereof with a mask layer 2 including a polyimide resin film 2, and implanting dopant ions into the substrate (Constitution). Japan Publication No. 04-002120's abstract doesn't mention that the substrate is SiC. It is well known in the art that SiC is used in the method of forming the devices such as MOS or FET in Japan Publication No. 04-002120. AAPA discloses the use of SiC layer as substrate (Page 1 of Specification). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use SiC as a substrate material because SiC material has wide band gap, large insulating electric field.

Still regarding claims 31-32, Japan Publication No. 04-002120 fails to disclose the substrate is heated to at least 300 oC or 500 oC for dopant ions are implanted. However, it would have been well know in the art that the high

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temperature of about 800 to thousand and some hundreds degrees are used to heat the SiC substrate during the ion implantation. In addition, the selection of such parameters such as **energy, concentration, temperature, time, molar fraction, depth, thickness, etc.**, would have been obvious and involve routine optimization which has been held to be within the level of ordinary skill in the art.

"Normally, it is to be expected that a change in **energy, concentration, temperature, time, molar fraction, depth, thickness, etc.**, or in combination of the parameters would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art ... such ranges are termed "critical ranges and the applicant has the burden of proving such criticality.... More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller* 105 USPQ233, 255 (CCPA 1955). See also *In re Waite* 77 USPQ 586 (CCPA 1948); *In re Scherl* 70 USPQ 204 (CCPA 1946); *In re Irmischer* 66 USPQ 314 (CCPA 1945); *In re Norman* 66 USPQ 308 (CCPA 1945); *In re Swenson* 56 USPQ 372 (CCPA 1942); *In re Sola* 25 USPQ 433 (CCPA 1935); *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

Still regarding claims 31-32, Japan Publication No. 04-002120's abstract doesn't mention the thin metal film or SiO<sub>2</sub> is posed between the polyimide and

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the substrate. However, AAPA states that metal layer or SiO<sub>2</sub> layer is formed on top of the substrate as a mask in the ion implantation process (Pages 2-3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to form a metal thin film or SiO<sub>2</sub> layer between the substrate and the polyimide in order to ensure high energy implantation in an environment of high temperature (page 3).

Claims 1, 6-8, 10-11, 25-27, 29-30 are allowed.

### ***Conclusion***

For the above reasons, it is believed that the rejections should be sustained. Feature of an invention not found in the claims can be given no patentable weight in distinguishing the claimed invention over the prior art.

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP ' 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is (571) 272-1785. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith, can be reached on 571-272-1907. Other inquiries of this application should be called to (571) 272-1562 or the fax number (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Thao P. Le', with a stylized flourish extending to the right.

Thao P. Le  
Primary Examiner  
August 16, 2007.